



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/618,909	07/14/2003	Bing Zhou	15913.39	7968
22913	7590	01/11/2005	EXAMINER	
WORKMAN NYDEGGER (F/K/A WORKMAN NYDEGGER & SEELEY) 60 EAST SOUTH TEMPLE 1000 EAGLE GATE TOWER SALT LAKE CITY, UT 84111			CHOI, LING SIU	
			ART UNIT	PAPER NUMBER
			1713	

DATE MAILED: 01/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/618,909

**Applicant(s)**

ZHOU ET AL.

**Examiner**

Ling-Siu Choi

**Art Unit**

1713

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-64 is/are pending in the application.
- 4a) Of the above claim(s) 49-64 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-48 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 11/14/03, 9/1/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

**DETAILED ACTION**

***Election/Restriction***

1. Restriction to one of the following inventions is required under

35 U.S.C. 121:

- I. Claims 1-48, drawn to an intermediate precursor composition, classified in class 502, subclass 103.
- II. Claims 49-64, drawn to a method to prepare an intermediate precursor composition, classified in class 502, subclass 104.

2. The inventions are distinct, each from the other because of the following reasons:

Inventions II and I are related as process of making and product made.

The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be made by another and materially different process such as a process by spraying and drying of a mixture of a catalyst and a binder [Heidemann et al. (US 6,528,683)].

3. Because these inventions are distinct for the reasons given above and

Art Unit: 1713

have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

4. During a telephone conversation with Mr. John M. Guynn on December 15, 2004, a provisional election was made without traverse to prosecute the invention of Group I, claims 1-48. Affirmation of this election must be made by applicant in replying to this Office action. Claims 49-64 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a petition under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

### ***Claim Objections***

6. Claims 1-48 are objected to because of the following informalities: (a) **claim 1, line 7**, "organiccompounds" is suggested to be changed to --organic compounds--; **lines 9-10**, "the reactive catalyst atoms" is suggested to be

Art Unit: 1713

changed to --the catalyst atoms--; (b) **claim 37, line 7**, "organiccompounds" is suggested to be changed to --organic compounds--; **line 9**, "the reactive catalyst atoms" is suggested to be changed to --the catalyst atoms--.

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

**The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.**

8. Claims 1-48 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims 1 and 37 contain subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Both claims 1 and 37 claim the use of **non-metals** as catalyst atoms which have a nearest neighbor coordination number of 2 on an upper surface of the resulting catalyst complex. However, the Applicants do not teach such use in the disclosure. Thus, the disclosure falls short of justifying such claim.

9. **The following is a quotation of the second paragraph of 35 U.S.C. 112:**

Art Unit: 1713

**The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.**

10. Claims 1-48 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1, the recitation of "a control agent comprising a plurality of complexing molecules" on line 6 and "each control agent molecule" on line 8 cause infiniteness because only one control agent is required in the invention although it comprises a plurality of complexing molecules. Is "control agent molecule" the same as "complexing molecule"? If it is the case, the "control agent molecule" is suggested to be changed to --complexing molecule-- for all claims (claims 1, 12-16, 27-29 , 37-39) having such term.

Claims 1 and 37, is "catalyst particles" on lines 15-16 the same as "catalyst complex" cited on line 13? If it is the case, "catalyst particles" on line 17 is suggested to be changed to --catalyst complex--.

***Claim Rejections - 35 USC § 102***

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

**A person shall be entitled to a patent unless --**

**(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the**

Art Unit: 1713

applicant for a patent.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

12. Claims 1-3, 9-11, 17, 20-24, 37, and 40-44 are rejected under 35

U.S.C. 102(e) as being anticipated by Zhou (US 6,740,615 B2).

The present invention relates to an intermediate precursor composition comprising

A	<b>a plurality of a catalyst atoms -</b> at least one member selected from the group comprising noble metals, rare earth metals, transition metals, and non-metals
B	<b>a control agent molecule -</b> a plurality of complexing molecules selected from the group comprising <b>polymers</b> , oligomers, and <b>organic compounds</b> , wherein the control agent has a plurality of functional groups disposed along a backbone for complexing the catalyst atoms to the control agent
wherein (a) at least about 50% of the complexing molecules is straight-chain and (b) at least a portion of the complexing molecules forming a catalyst complex between the catalyst atoms and the complexing molecules (c) the catalyst complex being capable of forming a supported reactive catalyst comprising a support and a plurality of reactive catalyst complexes dispersed on the support in such a way that <b>a preponderance of the catalyst atoms on an upper surface of the supported reactive catalyst have a nearest neighbor coordination number of 2</b>	

(summary of claim 1)

Zhou discloses an intermediate obtained by contacting a dried and calcined noble metal catalyst on a support with an organo-metallic complex forming agent, which breaks down the noble metal particle clusters and relocates the resulting smaller metal in the organo-metallic complex forming agent, wherein the noble metal catalyst comprises at least one of palladium, platinum, gold, iridium, osmium, rhodium, and ruthenium and the organo-metallic complex forming agent comprises at least one of citric acid, succinic acid, glycine, salicylic acid, and glycolic acid (claims 1, 11, 15, 21, and 22). However, Zhou is silent on the claimed properties of a complex of the active metal oxide and the binder. In view of the substantially identical binder used to chelate the metal oxide, the complex would possess the claimed properties. Since the PTO does not have proper means to conduct experiments, the burden of proof is now shifted to applicants to show otherwise. **In re Best**, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977); **In re Fitzgerald**, 205 USPQ 594 (CCPA 1980). Thus, the present claims are anticipated by the disclosure of Zhou.

13. Claims 1-48 are rejected under 35 U.S.C. 102(a) as being anticipated by Heidemann et al. (US 6,528,683).

Heidemann et al. disclose a catalyst consisting essentially of a carrier core and catalytically active metal oxides, which is obtained by spraying an aqueous active material suspension at relatively high temperatures onto the carrier core material at 50-450°C, wherein the aqueous active material suspension contains



Art Unit: 1713

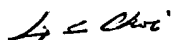
the active metal oxide such as titanium oxide and a binder which is a polymer comprising 5-100 wt% of ethylenically unsaturated acid anhydrides or ethylenically unsaturated dicarboxylic acids and 0-95 wt% of monoethylenically unsaturated monomer (col. 3, lines 66-67; col. 4, lines 1-65; claim 1). Heideman et al. further disclose that the metal oxide comprises zirconium oxide, iron oxide, nickel oxide, iridium oxide, cerium oxide, and alkali metal oxide (col. 8, lines 41-67; col. 9, lines 1-5). However, Heidemann et al. are silent on the claimed properties of a complex of the active metal oxide and the binder. In view of the substantially identical binder used to chelate the metal oxide, the complex would possess the claimed properties. Since the PTO does not have proper means to conduct experiments, the burden of proof is now shifted to applicants to show otherwise. **In re Best**, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977); **In re Fitzgerald**, 205 USPQ 594 (CCPA 1980). Thus, the present claims are anticipated by the disclosure of Heidemann et al.

### ***Conclusion***

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ling-Siu Choi whose telephone number is 571-272-1098.

If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reach on 571-272-1114.

Art Unit: 1713



**LING-SUI CHOI**  
**PRIMARY EXAMINER**

Ling-Siu Choi, Ph.D.

January 5, 2004